

High Prevalence of Antimicrobial Resistance Among *Shigella* Isolates to Agents Commonly Used for Treatment, NARMS 1999

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Background: Each year, an estimated 450,000 *Shigella* cases occur in the United States, resulting in over 6,000 hospitalizations. Treatment for shigellosis is usually empirical; trimethoprim-sulfamethoxazole, ciprofloxacin, and ampicillin are the most commonly used antimicrobial agents. In 1999, we conducted a survey to determine the prevalence of antimicrobial resistance among *Shigella* infections in the United States.

Methods: The 17 state and local public health laboratories participating in the National Antimicrobial Resistance Monitoring System (NARMS) for Enteric Bacteria forwarded every tenth *Shigella* isolate received from clinical laboratories to the CDC. At CDC, *Shigella* isolates were tested for antimicrobial susceptibility to 17 antimicrobial agents via broth microdilution.

Results: Overall, 215 *Shigella* isolates were received: 54 from Tennessee, 40 from New York City, 16 from New Jersey, and 105 from 13 other NARMS sites. Of 208 *Shigella* isolates tested for antimicrobial susceptibility, 134 (64%) were *S. sonnei*, 57 (27%) *S. flexneri*, 3 (1%) *S. boydii*, and 2 (1%) *S. dysenteriae*. Overall, 156 (75%) isolates were resistant to ampicillin and 71 (34%) to trimethoprim-sulfamethoxazole. *S. flexneri* isolates (51%) were more often resistant to trimethoprim-sulfamethoxazole than *S. sonnei* isolates (26%). In addition, 23 (40 %) of *S. flexneri* isolates were penta-resistant, resistant to ampicillin, chloramphenicol, streptomycin, sulfamethoxazole, and tetracycline. No isolates were resistant to ciprofloxacin, but 4 (2%) were resistant to nalidixic acid, a marker for decreasing susceptibility to fluoroquinolones (e.g., ciprofloxacin).

Conclusion: There is a high prevalence of resistance to trimethoprim-sulfamethoxazole and ampicillin among *Shigella* isolates; these agents may no longer be appropriate for the empiric treatment of *Shigella* infections. Although no resistance to ciprofloxacin was identified, 2% of isolates were resistant to nalidixic acid, indicating the potential for the emergence of ciprofloxacin resistance. Continued monitoring of antimicrobial resistance is needed to inform physicians of effective treatment strategies for patients with *Shigella* infections.

Suggested citation:

Agasan A, Reddy S, Williams G, Perry W, Backer M, Ramon A, Headrick M, Allan J, Hardin H, Joyce K, Rossiter S, Mintz E, and the NARMS Working Group. High prevalence of antimicrobial resistance among *Shigella* isolates to agents commonly used for treatment, NARMS 1999. 2nd International Conference on Emerging Infectious Diseases. Atlanta, GA, July 2000.